

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Wolfgang Clemens et al.

Serial No.: 10/517,750

Filed: 6/10/2005

Title: Substrate for an Organic Field Effect Transistor, use of said Substrate,
Method of Increasing the Charge Carrier Mobility and Organic Field Effect
Transistor (OFET)

Examiner: Hoang Quan Tran HO

Art Unit: 2818

Attorney Docket: 411000-122

Customer No. 27162

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Commissioner for Patents
Box 1450
Alexandria, VA 22313-1450

PETITION UNDER 37 CFR 1.181

Applicants are in receipt of an Advisory Action dated June 20, 2008 in regard to their response to the Office Action dated February 14, 2008 under 37 CFR 1.116 filed May 15, 2006. The Advisory Action refused to enter that response on the grounds of a new issue being raised by the amendment.

Applicants petition the Commissioner seeking the supervisory authority of the Commissioner to review and reverse the Advisory Action and enter the filed response.

The Advisory is confusing. It states that entry of claims 1-2, 4 and 6 is accepted and entry is denied for claims 5-7 and 9. Since the claim 6 does not have the objected to term contiguous, it is assumed it was intended that this claim be entered.

The amended claims in issue and which form the basis for refusing entry of the amendment are claims 5, 7 and 9 asserted in the Advisory Action as raising new issues with the added limitation "contiguous":

The objected to claims in issue are as follows:

5 (Currently amended) A method of increasing the charge carrier mobility of a semiconducting layer of organic material, wherein the semiconducting layer is formed on and contiguous with an underlayer comprising an oriented, biaxially stretched (well-ordered) plastic film. (The term contiguous is objected to)

7 (Currently amended). An organic field effect transistor (OFET) comprising:
a substrate ~~or an underlayer~~ which comprises a biaxially stretched (well-ordered plastic film); and
above and on that substrate contiguous therewith ~~or underlayer~~ is a semiconducting layer of organic material, the semiconductor layer exhibiting a charge carrier mobility of $\mu > 10^{-3} \text{ cm}^2/\text{Vs}$. (The term contiguous is objected to, the other amendment merely addresses an informality objection)

9 (Currently amended) An organic field effect transistor (OFET) comprising a an substrate underlayer and a semiconducting layer on and contiguous with the substrate underlayer according to claim 4. (The term contiguous is objected to, the other amendments merely address an informality objection)

The following amended claims are not objected to in the Advisory and entry is accepted. These claims are amended to correct objections thereto based on formal matters.

1 (Currently amended) In an electronic organic component, the combination comprising:
a substrate ~~and/or underlayer~~ of the electronic organic component; and
an organic semiconductor functional layer coated on the substrate ~~or underlayer~~;
wherein said substrate ~~or underlayer~~ comprises a biaxially stretched (well-ordered) plastic film such that the orderliness of the plastic film forms the applied functional layer into a well-ordered layer to thereby increase the charge carrier mobility of the coated organic functional layer.

2 (Currently amended) In the electronic organic component ~~A substrate~~ as defined in

claim 1, wherein the plastic film is at least partially crystalline .

4 (Currently amended). In the electronic organic component A substrate as defined in any one of claims 1 or and 2, wherein the plastic film is selected from any one of the group consisting of isotactic polypropylene, polyamide, polyethylene, or polyethylene terephthalate.

6 (Currently amended) In the electronic organic component ~~The component~~ of any one of claims 1 or and 2 wherein the component further comprises an organic field effect transistor (OFET) comprising the substrate ~~or underlayer~~ and the semiconductor layer coated on the substrate ~~or underlayer~~.

Accepted claim 1 calls for:

“an organic semiconductor functional layer coated on the substrate”

The unaccepted representative claim 5 calls for:

“the semiconducting layer is formed on and contiguous with an underlayer comprising an oriented, biaxially stretched (well-ordered) plastic film”

The Advisory Action states that the feature argued that the semiconductor is contiguous in claim 1 with the substrate is not recited in claim 1. This is error.

Claim 1 calls for the an organic semiconductor functional layer coated on the substrate.(underlining added) This is plain garden variety English. If the semiconductor is coated on the substrate it must be contiguous with the substrate, it can not mean anything else. A coating on a substrate can not reasonably mean that the coating is on some intervening material. If this is the case, then the coating is not on the substrate, it is on something else, which something else is contrary to claim 1.

The claim calls for the semiconductor as "coated on the substrate," and the plain meaning of the term "coated on the substrate" is that the coating is applied onto a substrate surface and thus by definition must be contiguous with that surface. This is the plain meaning of this term.

MPEP 2111.01 III recites " '[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.' " Citing cases. "It is the use of the words in the context of the written description and customarily by those skilled in the relevant art that accurately reflects both the 'ordinary' and the 'customary' meaning of the terms in the claims." Citing case. It further states at page 2100-40 right hand col. " ' Where there are several common meanings for a claim term, the patent disclosure serves to point away from the improper meanings and toward the proper meanings.' " citing case.

Applicants' drawing shows the semiconductor 3 directly on and contiguous with the substrate 1. The specification plainly shows that it is intended that the substrate surface be coated directly by the semiconductor which may be by any coating process, such as spin coating, printing, knife coating, vapor deposition, sputtering and so on. See paragr. [0011] of the substitute specification. Applicants' specification plainly discloses that the contiguous nature of the semiconductor layer coated on the biaxially stretched substrate transfers certain properties to the semiconductor in view of that direct physical relationship between the semiconductor and the substrate. This is the only reasonable interpretation of the disclosure and thus claim 1.

The term coating means something that is applied to a surface as a coating such as a thin film such as paint and the like. The coating is on the substrate and the term "on" must be construed that the coating must be applied to a surface of the substrate. That is what the term "on" means. Any other construction is not according to the plain meaning of the term "coating on." Certainly a coating on a substrate can not be construed as a coating on some intervening structure. This is contrary to the plain meaning of the term "coating on."

The advisory states applicants' arguments are importing the contiguous limitation into claim 1. This is not true. Applying a coating on a substrate does not and can not mean anything else to one of ordinary skill, but the coating must be contiguous to the surface of the substrate, this is how coatings are applied, to a surface. The claim is being read by the examiner as if it calls for the semiconductor being on the substrate. This also may be true, but the claim does not recite this language. The claim in reciting "an organic semiconductor functional layer coated on the substrate" means just that, that the material must always be on that surface and is applied by a coating process, it cannot mean anything else. This is inherent.

Enclosed are copies of the web dictionary Wikipedia for the term "coating." Here it is stated that a coating is a covering that is applied to "improve surface properties of a bulk material." This confirms that a coating is applied to a surface of a substrate and not to an intervening structure. It also states under the heading "Coating and Printing Process" "Properties . . . may be added to fabrics by altering the material surface."

The main coating processes are listed which include certain of the processes delineated above in applicants' specification among numerous others. One of ordinary skill would always understand that a coating on a substrate means the coating is applied directly to a surface of that substrate.

The objection to the addition of the term "contiguous" to claims 5, 7 and 9 thus is meritless. Since claim 1 calls for the semiconductor layer to be coated on the substrate, such a coating must be on the surface as depicted in applicants' specification and in the Wikipedia definitions. If the coating is on a surface, it must by definition be contiguous with that surface. It can not mean anything else and this is how one of ordinary skill would construe claim 1.

In light of this construction, the addition of the term "contiguous" is not a new issue, but one present all along in claim 1 and its dependent claims. This term merely makes the relevant claims consistent with claim 1. The term contiguous is not importing a limitation to claim 1, but is what the claim means in its ordinary and customary meaning as would be understood by those of ordinary skill in this art. One does not coat a substrate by applying a coating to intermediate materials as urged by the Advisory. This is not a correct construction of this claim language and is an unreasonable construction. The addition of the term contiguous to claim 9 which depends from claim 4, only makes express what is implicit in view of the above discussion and thus is merely redundant terminology. The coating can only be contiguous in claim 1 as discussed above. The other claims to which the term

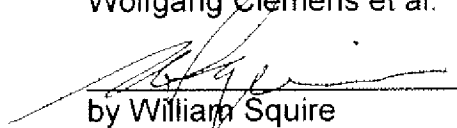
"contiguous" is added merely is making these claims consistent with claim 1 as construed above herein.

For these reasons, applicants respectfully request that the Advisory be reversed, and the amendment entered as not constituting new issues and is proper under 37 CFR 1.116. Since the cited references do not disclose or suggest the claim 1 structure or that of any other claim for the reasons given in applicants' response, then the application should be deemed to be in condition for allowance and such Action respectfully requested.

No fee is believed due for this paper. However, the Commissioner is authorized to charge or credit deposit account 03 0678 for any under or overpayments in connection with this paper.

June 27, 2008

Respectfully submitted,
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Coating

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Coating is a covering that is applied to an object. The aim of applying coatings is to improve surface properties of a bulk material usually referred to as a substrate. One can improve amongst others appearance, adhesion, wetability, corrosion resistance, wear resistance, scratch resistance, etc.. They may be applied as liquids, gases or solids.

Examples of coatings:

- Coating and printing processes
- Chemical vapor deposition and physical vapor deposition
- Conversion coating
 - Anodizing
 - Chromate conversion coating
 - Plasma electrolytic oxidation
 - Oxide (coating)
 - Phosphate (coating)
- Detonation Coating
- Paint
 - Enamel (paint)
 - Powder coating
 - Industrial coating
 - Silicate mineral paint
 - Fusion bonded epoxy coating (FBE coating)
- Pickled and oiled, a type of plate steel coating.
- Plasma coatings
- Plating
 - Electroless plating
 - Electrochemical plating
- Polymer coatings, such as Teflon
- Sputtered or vacuum deposited materials
- Enamel (vitreous)

See also

- List of coating techniques
- Thin-film deposition

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Categories: Coatings | Corrosion | Chemical processes | Industrial processes | Technology stubs

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Coating and printing processes

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Coating and printing processes involve the application of a thin film of functional material to a substrate, such as roll of paper, fabric, film or other textile. The coating or printing can be applied to serve some sort of function (e.g. water-proofing) or just for decoration.

Coating processes are widely used to enhance and alter the physical properties and appearance of a fabric. Most fabrics are made of nylon, polypropylene, polyester, cotton and wool fibers, while most of the polymer coatings are based on polypropylene, polyester and polyethylene. Properties such as chemical resistance, anti-stain (or low surface energy), chemical release, hydrophilicity, vapor and gas diffusivity, electrical conductivity and abrasion resistance, may be added to fabrics, by altering the material surface without affecting its overall physical and mechanical properties.

The main coating processes include:

- Air knife coating
- Immersion (dip) coating
- Gap Coating
- Curtain coating
- Rotary screen
- Reverse Roll coating
- Gravure coating
- Metering rod (Meyer bar) coating
- Slot Die (Extrusion) coating
- Hot Melt coating
- Roller coater
- Flexo coater
- Silk Screen coater
- Anilox coater

The main coating and varnishes for the printing industry include:

- Overprint varnish
- Water based coating
- Acrylic based
- Solvent based
- Aqueous coating
- UV Coating - curing (chemistry)

External links

- Water Based Coatings (http://www.russell-webb.com/water_based_coatings_varnish/clearcoat_water_based_coatings.html) --- Russell-Webb Ltd
- Learn about printing (<http://glossary.ippaper.com/default.asp?req=knowledge/category/1&catitemid=1>) --- International Paper
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